the purpose of initiating investigations in this direction. At the instance of the same gentleman, a similar sum was recently obtained out of the Government grant administered by the Royal Society, shortly after which the separate Committees appointed to administer the two grants agreed to combine for the purpose "of reporting on the present state of our knowledge of the zoology and botany of the West India Islands, and of taking steps to investigate ascertained deficiencies in the fauna and flora."

The joint Committee thus formed consists of Prof. Flower, Mr. Carruthers, Mr. Thiselton Dyer, Dr. Günther, Prof. Newton, Mr. Sclater, Dr. Sharpe, Lieut.-Col. Feilden, and Mr. D. Morris. Prof. Flower has been elected Chairman of the Committee; Mr. Thiselton Dyer, Secretary; and Mr. Sclater, Treasurer.

Lieut.-Col. Feilden having accepted a colonial appointment in Barbados will be in future resident at Bridge-Town, where he will act as local Secretary of the Committee, while Dr. H. A. Alford Nicholls, F.L.S., C.M.Z.S., has kindly agreed to assist in the same capacity in Dominica. In order to commence their investigations without delay, the Committee have secured the services of Mr. George A. Ramage, who was lately associated with Mr. Ridley in his expedition to the island of Fernando Noronha, and has since been collecting in Pernambuco. Mr. Ramage arrived in Dominica in March last, and has proceeded to his work with great zeal. In May, after passing five weeks at Laudat, on the right bank of the Roseau River, about 2000 feet above the sea-level, he moved to St. Aroment, an estate belonging to Dr. Nicholls, just above Roseau, which he found to be a better locality for getting his plants dried. At Laudat he met with great difficulty in this matter on account of the extreme wetness of the climate. Writing in May last, Mr. Ramage speaks of having got, besides his plants, "a good lot of insects, lizards, small snakes, and land-molluscs." Besides these, he had also obtained three specimens of *Peripatus*. This is a valuable discovery, as this singular organism was originally discovered in Dominica by Guilding many years ago, and has not been since obtained in the same locality.

After exploring Dominica, Mr. Ramage will probably receive instructions to proceed to the other islands of the Leeward group, some of which are almost entirely unworked as regards their animal and vegetable life. Now that this important investigation has been so fairly started, it is hoped that little difficulty will be experienced in obtaining further assistance from the British Association and the Royal Society. It should, perhaps, be mentioned that complete sets of all the specimens obtained will be placed in the British Museum and Kew Herbarium, the Directors of these two Institutions being themselves both members of the Committee.

SONNET*

TO A YOUNG LADY WITH A CONTRALTO VOICE,

On her singing, on a warm summer's afternoon, without accompaniment, save the music of the birds heard through the open windows of the author's rooms overlooking the beautiful garden of New College, Oxford, the old English ditty,
"Deck not with gems that lovely form for me,"
in which occurs the line,
"I must have loved thee hadst thou not been fair."

THE startled, ambushed, nightingales despair
    To match those notes, so tender sweet and low,
That poured through lips where Cupid lays his bow
Had made thee loved e'en hadst thou been less fair.
What need hast thou with gems to deck thy hair,
Of aught of wealth Golconda's mines bestow,
Rubies or pearls rash divers seek below!—
Thou canst in nobler wise thy worth declare.
Oft shall thy votary in his cloistered cell
In deep research of Nature's secret clue
Pause, to bid Memory with her magic spell,
Bring back thy face and sweet girl-form to view,
And in fond fancy hear thy voice anew
Till life to gladness breathes its last farewell.

Athenæum Club, July 25. J. J. S.

NOTES.

NEXT year there will be in Paris what promises to be a splendid Anthropological Exhibition under the auspices of the French Ministry of Public Instruction. It will be organized by Committees representing the Society, the School, and the Laboratory of Anthropology; and an appeal for aid has been addressed to all who are, or have at any time been, connected with one or other of these institutions. The Exhibition will include objects relating to all branches of anthropological science.

CAPTAIN JOHN ERICSSON, who retains much of his vigour and youthful activity, celebrated his eighty-fifth birthday at New York on Tuesday, July 31. The King of Sweden and Norway cabled orders to Consul General Bors to call upon the eminent engineer, and convey to him on the occasion renewed assurances of His Majesty's esteem. "Consul-General Bors," says the *New York Daily News*, "was only too happy to execute this commission, and when he called at 36 Beach Street to-day to deliver the message he brought with him a beautiful bouquet that delighted the great engineer extremely when he received it. He very willingly granted Consul-General Bors an audience, and thanked him for the courteous message be brought from his Royal master. Captain Ericsson has a wonderful faculty of talking and working out the most exact mechanical drawings at the same time, and Mr. Bors's visit did not interrupt him in his work in the least. He chatted with him cheerily, and listened with an amused smile to the Consul's expressions of wonder at his marvellous health and mental vigour."

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* This is the original form of the sonnet, published in the preceding number of NATURE, which, if perhaps superior to this in expression, is open to the reproach from which the original is free, pointed out to the author by his distinguished friend, the great Traveller and Orientalist (the translator, too, of Camoens sonnets), Sir Richard Burton, of deviating from the Petrarchian model by its sestett having one rhyme in common with the octave. In my "Laws of Verse" (if I remember right) I have compared the octave and sestett of a sonnet to the body and the frame or bed of a carriage respectively. The effect of a rhyme common to the two may be likened to that of driving in a spike, which converts the previous springy connection of the two parts into a fixture. The much more common fault of English sonnets is the reverse of this, viz. that they contain too many distinct rhymes instead of too few. In the form-build of the two sonnets I may be said to have discovered a locket artistically adapted to receive either one of two miniatures, each in its own way equally exquisite, and worthy of ineffable regard and adoration. I left the Subject of this week's sonnet at the door of Magdalen College Chapel to attend the evening service there, and early the next morning, as it now reads, with the exception of changes in three lines only, it was in the hands of her parents.

With regard to the punctuation of this and other of my poetical pieces, I share to a great extent the opinion of the late deeply regretted Matthew Arnold, that in poetical composition the fewer points the better: grammatical or (so to say) choristic points as such should never be introduced except when necessary to prevent ambiguity or obscurity of meaning: consequently there will be many points left out in poetry which would be found in the same piece written in prose. But *per contra* I hold that points are sometimes useful or even necessary in poetry which would not be found in prose, viz. to mark brief pauses or almost insensible musical rests. The pointing I have adopted in the line from last week's sonnet—

Thy flashing, rushing, fingers to indue—

affords an exemplification of this latter principle. The commas on each side of *rushing* are not choristic but melodic, and would not appear in prose.

In law writings no points at all are introduced, and for reasons which in no wise conflict with the principles referred to above.

1°. A law document is expected and ought to be written in such a form as to be insusceptible of an equivocal or doubtful construction.

2°. No one expects a law document (unless maybe it were a marriage certificate or deed of separation by mutual consent) to have much music in its lines.

One of the official readers of the sonnet contained in the last number of NATURE has written to me to say that he cannot see the sense of lines 3 and 4. The answer is, I think, obvious. In the human organism all parts, faculties, and powers are connected and correlated. Consequently a voice whose notes are pure, sweet, and true affords a voucher (I do not say mathematical proof, but presumptive evidence which may be accepted in the absence of rebutting facts) of the character to which it appertains being sweet, pure, and true. But sweetness, purity, and truth are the prime ingredients of goodness. Therefore notes which are pure, sweet, and true vouch for the goodness of the person to whom the voice belongs. Q.E.D.

The argument in the text is put in the form of an enthymeme, the major premise—*All persons whose singing notes are sweet, pure, and true offer a presumption that they are good*—being suppressed. It is notorious that birds instinctively, and therefore on the surest ground, infer the worthiness (or according to their ethical code the goodness) of their partners from their superiority in song. Witness the distich from a sonnet familiar to many of my readers—

Like foolish bird who in the fowler's cry
Hears her loved mate's soft amorous melody

If I am wrong in supposing so, I hope that Mr. Romanes, or any other biologist (if such there be) of equal skill with him in Darwinian dialectics, will set me right in this point, and inform the readers of NATURE on what other intelligible ground can be explained the recourse had to song by the male bird to win the affections of his mate. If such be the case with birds, why should it not be equally true of the sometimes scarcely less volatile portion of the human race?

The Congress for the study of tuberculosis, lately held at Paris, was very successful. Numerous and important papers were read, and there was always a large attendance of members. The next meeting will be held in 1890, under M. Villemin's presidency.

The sixty-first meeting of German men of science and physicians will be held in Cologne from September 18 to 23 next.

Mr. James Stevenson, late Executive Officer of the United States Geological Survey, died at Gilsey House, New York, on July 25. He was born, in 1840, at Maysville, Kentucky.

The United States Senate has voted to pay the widow of the late Prof. Spencer F. Baird 50,000 dollars in recognition of his services as United States Fish Commissioner.

Last year, Bedford College sustained a great loss by the death of Mr. Shaen, who had been one of its most active friends since its earliest days; and a wish was then widely expressed that some scheme should be devised which should permanently associate his name with Bedford College. The Council now propose that a building shall be erected on a site immediately behind the College, and that it shall be called the Shaen Wing. In this building there would be good laboratories and class-rooms, and it is believed that the premises could be so arranged as to provide accommodation, at a moderate charge, for a number of students. It would be hard to think of a more suitable memorial of Mr. Shaen, and we have no doubt that the entire amount necessary for the carrying out of the plan (£3000) will soon be subscribed. The proposal that a large part of the fund shall be devoted to science laboratories strikes us as an interesting and hopeful sign of the times. Bedford College has done much to help the movement for supplying women with better opportunities of study. Of the 452 women who have passed the various examinations of the London University, no fewer than 123 have been students of this institution; and about one-third of the present students are working for these examinations. It may be reasonably expected that when the new laboratories are opened the results will be even more satisfactory than those now achieved; for all the present laboratories are adaptations of former class-rooms, and, being deficient in light and space, are but imperfectly fitted for the purposes for which they are used.

In his Report on the technological examinations of 1888 Sir Philip Magnus says that in the present year there has again been a large increase in the total number of candidates examined. In 1887, 5508 were examined, of whom 3090 passed; in 1888, 6166 were examined, of whom 3510 passed. The increase in the number of candidates is less this year than last year, being 658 as compared with 744. Examinations have been held this year in forty-nine different subjects, in seven of which less than ten candidates presented themselves. The subjects in which the least number of candidates presented themselves are those connected with the chemical industries, and the examiners in these subjects generally remark that few of the candidates are found to possess that combined knowledge of scientific principles and of technical processes which is desirable. The increase in the number of candidates has been most marked in cloth, cotton, linen, and jute manufacture, in plumbers' work, carriage-building, carpentry and joinery, and in brickwork and masonry. The average percentage of failures has fallen from 43·8 to 43·1; and from the separate reports of the examiners it appears that in most subjects there is a distinct improvement in the quality of the candidates' written answers and practical work. Of the 3510 successful candidates, 758, or 21·6 per cent., have passed in the honours grade, as against 21·9 per cent. last year. It appears that 10,404 students have received instruction in 475 registered classes connected with the City and Guilds of London Institute. These classes were in 183 different towns in the United Kingdom. The corresponding numbers for the previous year were 8613 students, 365 classes, and 121 towns. These numbers do not include the students at the Finsbury Technical College, the Yorkshire College, Leeds, and other Colleges the Professors of which do not receive grants on results, and the candidates from which are classed as "external" candidates. Sir Philip Magnus anticipates that with the establishment of new Polytechnic Institutions in different parts of London there will be a large increase in the number of students in the technical classes registered by the Institute and in the number of candidates for examination.

In the Report, for the year 1886–87, presented by the Board of Managers of the Observatory of Yale University to the President and Fellows, complaint is made that too large a proportion of the clinical thermometers (foreign or American) sent to the Observatory for verification are despatched so soon after their manufacture that the corrections given are liable to change with a year's use. "Physicians," says Mr. Robert Brown, secretary of the Observatory, "would obtain much more exact indications of temperature if, estimating the probable annual breakage, they would provide themselves with two or three years' supply of well-made, well-graduated clinicals, and obtain tables of corrections only after the instruments were *known* to have attained a proper age of, say, one or two years. The comparatively small demand for clinicals whose *age* as well as correction is certified, seems to imply that the medical profession is not yet generally awake to the exactitude that is practicable in ascertaining body temperature."

The sealer *Jason* has arrived in Norway from the Greenland coast, and reports that the Expedition under Dr. Fridtjof Nansen, which is to cross Greenland from east to west, left that ship on July 17 in latitude 65° 2′ N. An ice-belt about ten English miles in width separated the ship from the shore, but it is believed that the members would have no trouble in crossing this, the floes being large. Dr. Nansen intended to land in the Sermilik Fjord, which is inhabited. Previous attempts at landing had failed on account of rain and fog.

It is said that the Cincinnati Exposition is the best that has been held in America since the great one at Philadelphia in 1876. We reprint from *Science* the following account of it:—"People who were at New Orleans in 1885 say that this is enormously superior in all the arts, especially upon the mechanical and industrial side. The Exposition covers 15 acres in the very heart of the city, and in every part of this large area one meets evidences of taste, skill, ingenuity, and perseverance in adapting means to ends, which form a series of apparently never-ending surprises as one passes from one exhibit to another. The Government exhibits are all good and all characteristic. The Smithsonian Institution and the Geological Survey exhibits attract crowds. In the latter, Prof. F. W. Clark has some transparent photographic views, represented in colours by some new and as yet undisclosed process. The effect is wonderfully natural and beautiful, and if it is found to be durable it will prove a great discovery. The very fine models of the new classes of naval vessels now building attract crowds daily, as do the various forms of weapons for wholesale slaughter, in case we ever have another war. In close juxtaposition are the ingenious devices, for saving life in cases of shipwreck, of the Life-saving Service. The Fish Commission exhibit is not as yet complete. In such elaborate displays, requiring much preparatory work, more time should have been allowed for preparation. The Post Office Department and the Army exhibits are also incomplete, but a few days will find everything in order."

THE native birds of North America, which were supposed to be rapidly disappearing, reappeared in great numbers during the spring of the present year. This was first noted in the New York papers, and was promptly credited to the liberal destruction of the pugnacious English sparrow, unable to withstand the storm-beating received in the great March blizzard. But counter to this explanation, says *Science*, comes information from Illinois that the attention of all is attracted to the remarkably large number of birds that are to be seen. The groves, the woods, and the meadows in the country, and the many trees in the city, are peopled with these feathered visitors. The oldest inhabitant does not remember to have seen so many and such a variety of birds. And yet the great blizzard did not visit Illinois.

THE vapour-density of hydrofluoric acid has been subjected to a rigorous re-examination at the hands of Prof. Thorpe and Mr. F. J. Hambly. Prof. Mallet some time ago showed that, at a temperature of 30°·5 C., the density of hydrofluoric acid vapour corresponded to a molecule of the composition H_2F_2; consequently we have been accustomed to think of this substance as consisting of ordinary molecules of HF at higher temperatures, and of condensed molecules of H_2F_2 just above its boiling-point. But we have recently seen, from the experiments conducted in Prof. Victor Meyer's laboratory upon the molecular nature of sulphur, and also from the previous investigations concerning the composition of the molecules of the chlorides of aluminium, tin, and iron, that our older ideas as to the formation of condensed molecules, such as S_6 or Fe_2Cl_6, at particular temperatures were erroneous; that these condensed molecules were not capable of existence throughout any notable range of temperature. It therefore became an interesting question whether hydrofluoric acid would not behave in a similar manner. To test the question thoroughly, fourteen vapour-density determinations, at temperatures ranging from 26°·4 to 88°·3 C., have been carried out in the research laboratory of the Normal School of Science by means of an elaborate and expensive platinum apparatus. The first necessity was, of course, the pure anhydrous acid. This was freshly prepared, as required for each experiment, from the now famous double fluoride of hydrogen and potassium; it was afterwards re-distilled from the platinum retort through the density apparatus, which was placed in a bath of glycerol heated to the required temperature. The vessel, of known capacity, in which the hydrofluoric acid was eventually weighed consisted of a platinum cylinder completely closed, with the exception of the entrance and exit tubes, which could be closed at will by means of well-fitting platinum stopcocks of skilful workmanship. The whole operations could thus be conducted in platinum throughout, and are, therefore, of the most trustworthy character. As expected, the values obtained correspond to molecular weights ranging from 51·19 at 26°·4 to 20·58 at 88°·3, thus showing a continuous breaking down of the molecular grouping, until, finally, we arrive at the stage where the whole of the molecules consist simply of HF, corresponding to the normal density of 20. No other molecular condition than this is capable of existing throughout any considerable range of temperature. It is of the highest interest to consider what happens below 26°·4. The natural inference is that the molecular grouping becomes more and more complex, or condensed, until we reach a point where the substance becomes visible—a liquid; while still further condensation eventually brings us face to face with a solid.

THE Report of the Conservator of Forests in Ceylon for the past year says that though Sir Joseph Hooker in 1873 called attention to the rapid destruction of forests in that island, no steps were taken by the Government till 1882. In that year, as a result of a report of Mr. Vincent, of the Indian Forest Department, the Government turned its attention to the subject, and in 1885 the "Forest Ordinance" was issued. The objects of this Ordinance were, briefly, to select suitable areas of forest land and constitute them State forests, to buy off any interests which private individuals might have in those lands, to place them under effective protection, and generally to systematize the forest conservancy. Even now the Crown forests are plundered in a wholesale fashion by organized bands of thieves, but it is hoped in a short time to put an end to this, and make the forests of Ceylon as remunerative, comparatively speaking, as those of India, where they produce a substantial revenue. Ruin has threatened the Ceylon forests, just as it threatened the forests of Jinjira, in Western India, where three-fourths of a vast forest forty miles long, and from fifteen to a hundred miles in breadth, was destroyed, and the remainder with difficulty saved.

IN an interesting paper on ancient tide-lore, reprinted, with some other papers by the same author, from the Transactions of the New Zealand Institute, Mr. W. Colenso, F.R.S., describes the old belief of the Maories as to the ebbing and flowing of the sea. These phenomena, it seems, they attributed to a huge ocean monster, whose home was low down in the depths beyond the horizon. It was supposed to do its work by powerful and regular respiration, or ingurgitation and regurgitation of the water. The monster's name was Parata; and any one overtaken by great misfortune is said to have fallen into Parata's throat. In a myth relating to the first peopling of New Zealand, one of the chief canoes, named the *Arawa*, is represented as being carried into the enormous mouth of the monster, and as being with difficulty extricated by Ngatoroirangi, the courageous and cunning *tohunga* (= priest, or wise man) on board, who recited his powerful charm for the purpose. The words of this charm or spell are still preserved.

IN his Report to the Foreign Office on the agriculture of Yezo, the British Consul at Hakodadi says that though the Ainos are a hunting and fishing people, yet efforts have been made to induce them to cultivate the soil. In 1869 the influx of Japanese to the fishing grounds reduced them to great straits. This appears to have continued till 1882, when attention was drawn to their condition, and sums of money were distributed amongst them to relieve their distress, schools were built, and attempts were made to teach them farming. In 1886 the money gifts were stopped, but the efforts to teach them agriculture continued, and at the end of that year about 803 acres were cultivated by the Ainos. The Consul remarks that it is impossible to tell how many Ainos there are in Japan, from their carelessness or dislike to record the births and deaths; but it is calculated that there are about 3600 houses in Yezo—that is, about 14,000 people. The general impression is that they are gradually disappearing, but obviously the Government of Japan is doing all it can to aid the Ainos, and to foster in them a spirit of self-help.

THE last number (Session 1887-88) of the *Madras Journal of Literature and Science* contains the first part of a treatise by Prof. Oppert, of the Presidency College, Madras, on the original inhabitants of Bharatavarsa, or India, whom he describes as

Ganda-Dravidians. This term the learned writer explains by saying that the two special Ganda-Dravidian terms for mountain are *mala* and *ko*, both being widely used and prevalent throughout India. Those tribes, whose names are derived from *mala*, he calls Dravidians, and those whose names are derived from *ko*, Gandians. In this way the Mallas, Mālas, Malavas, Malayas, &c., and the Kōyis, Kōdulu, Kondas, Gondos, Kuruvas, &c., are classified as Dravidians and Gandians respectively. The presence of the Ganda-Dravidians in India can be proved at a very early period "from the north-west across to the north-east, and from both corners to the furthest south. On the arrival of the Aryans on the north-western frontier, the Ganda-Dravidians are already found in flourishing communities." In the present instalment of his work, Prof. Oppert endeavours to prove the antiquity of this race, especially of the Dravidian branch; in the next he will treat of the Gandians. His own summary of his positions in the concluding section is to this effect: in following the ramifications of the Dravidians throughout the peninsula, he points out the connection which exists between several tribes, apparently widely different from each other; he has identified the so-called pariahs of Southern India with the old Dravidian mountaineers, and establishes their relationship with a number of tribes forming, as it were, the first layer of the ancient Dravidian stratum, and he endeavours to show that various other different tribes are offshoots of the Dravidian race. He thinks also that much that is now considered Aryan in name and origin must be regarded as originally Dravidian. The various Dravidian tribes scattered over India are separately introduced into the discussion in order to establish their mutual kinship. Prof. Oppert, in fact, labours to restore the Dravidian "to those rights and honours of which he has so long been deprived." The spirit in which he has undertaken what is obviously a great work is sufficiently evident from the words with which he concludes the present article:—"My errors, too, may not be without use if, like stranded vessels, they serve to direct the explorer, warning him away from those shoals and rocks that beset the inquirer in his search after truth."

IN the Berlin *Meteorologische Zeitschrift* for July, Dr. E. Brückner discusses the meteorological observations of the German Polar station at Kingua Fjord (Cumberland Sound), and also of the stations in Labrador and South Georgia, in the year 1882-83. The results represent three distinct types of winter climate. Kingua Fjord has a calm, severe winter, and cool summer, the warmest month being August, whereas July is usually the warmest month in Arctic North America. In Labrador the cold is often accompanied by stormy west winds, and although the temperature is higher than at Kingua Fjord, the cold is much more keenly felt. South Georgia naturally partakes of the oceanic character, but the yearly temperature, 34°·5, is much lower than at the neighbouring stations on the coast of South America, in the same latitude (54° 31′ S.), and is the lowest yet known in the southern hemisphere. Dr. P. Schreiber contributes an instructive article on the question of the deduction of true daily means of temperature from three or four observations daily. He gives a series of nine combinations, and their results, as compared with twenty-four hourly observations at Chemnitz. The result shows that the somewhat inconvenient hours of 6 a.m., 2 and 10 p.m., give the nearest true daily temperature. The inquiry is interesting as bearing upon the question of the necessity of continuing the expensive process of continuous records for an unlimited period.

DR. BUYS BALLOT, the Director of the Meteorological Institute of the Netherlands, has published an excerpt paper from the Proceedings of the Amsterdam Academy of Sciences, on the distribution of temperature over the surface of the earth. Instead of representing the temperatures by the usual method of isothermal lines, he gives the departures for each 5° of latitude and longitude from the normal temperature at the equator, by means of figures, using ordinary and thick type to avoid the use of plus and minus signs. The variations of temperature for the typical months of January and July, and for the year, are very clearly shown by this method. The work is also accompanied by maps, connecting by curves all places having the same mean differences of temperature in the summer and winter months.

AMONG the contents of the new number of the *Internationales Archiv für Ethnographie* (Band i. Heft 4) we may note: a Singapore street scene, by Prof. G. Schlegel; a paper, by F. Grabowsky, on certain sacrificial customs in Borneo; another, by J. D. E. Schweltz, on South Sea relics; and various ethnographic notes from Mecca, by G. Snouck Hurgronje. All the articles are admirably illustrated with coloured plates.

A NEW autumn edition of "Walks in Epping Forest," by Percy Lindley, describing portions less known to pedestrians, is in preparation. Prof. Boulger has contributed to the same issue some notes upon the recent extensive tree-felling and "forestry" operations in Epping Forest.

A book on "The General Principles of Agriculture," by A. Larbalétrier (Reinwald), has just been published in Paris.

GEGENBAUER'S "Human Anatomy" is being translated into French. The first quarter of the book was recently published by Reinwald.

THE *Odessa Gazette* reports the discovery of the remains of an ancient town on the right bank of the Volga. These remains are traceable over an area about two miles long, by three-quarters of a mile in width. The place has been visited by a deputation from the Commission of Archives. A very considerable quantity of Arabian, Persian, and Tartar coins has been found there, besides a multitude of other objects which bear witness to the cultivated state of the inhabitants. There were remains of marble blocks, of watercourses, &c.

AN exploring party of eight persons, led by Lieut. Israel, have set out from South Australia to explore the country north-east of Newcastle in Western Australia, and particularly the territory around Lake Moore and Lake Manga. The objects of the expedition are said to be partly scientific and partly commercial, and the funds have been supplied by a number of Australian capitalists.

A CORRESPONDENT—who says that everyone who looks through the series of photographs of lightning in the possession of the Royal Meteorological Society must be struck with the fact that many of the flashes exhibit a ribbon-like structure, while the appearance is totally absent from others—has made some experiments in order to ascertain whether a similar appearance can be produced by interposing a sheet of window-glass between a narrow brightly-illuminated slit and the camera. So far as these experiments have yet gone, he is not in a position to assert that all the peculiar band-like appearances can thus be imitated, but there is no doubt, he asserts, that a photograph of an unribboned flash taken obliquely through a window must exhibit appearances very similar, if not identical.

THE additions to the Zoological Society's Gardens during the past week include a Weeper Capuchin (*Cebus capucinus* ♂) from Brazil, presented by Mr. Haddan; two Common Genets (*Genetta vulgaris*) from West Africa, presented by Mr. Philip Lemberg; three Palm Squirrels (*Sciurus palmarum*) from India, presented by Surgeon-Major W. G. King; an Orange-winged Amazon (*Chrysotis amazonica*) from South America, presented by the Hon. N. L. Melville; two Fulmar Petrels (*Fulmarus glacialis*) from St. Kilda, presented by Mr. W. C. Gilles; a Common Chameleon (*Chamæleon vulgaris*) from North Africa, presented by Mr. Underwood; a Macaque Monkey (*Macacus cynomolgus* ♂) from India, an Ocelot (*Felis pardalis*), a Common Rhea (*Rhea americana*) from South America, a Ring-necked Parrakeet

(*Palæornis torquatus*) from India, a Grey-breasted Parrakeet (*Bolborhynchus monachus*) from Monte Video, two White-fronted Amazons (*Chrysotis leucocephalus*) from Cuba, two European Tree Frogs (*Hyla arborea*), European, deposited; a Barraband's Parrakeet (*Polytelis barrabandi*) from New South Wales, purchased; a Mountain Ka-Ka (*Nestor notabilis*) from New Zealand, received in exchange; two Canadian Beavers (*Castor canadensis*), three Gold Pheasants (*Thaumalea picta*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

FURTHER COMETARY DISCOVERIES.—Mr. W. R. Brooks, Smith Observatory, Geneva, New York, discovered a new comet, 1888 *c*, on August 7. The place for 8h. 46m., G.M.T., on August 7 is given as R.A. 10h. 5m., Decl. 44° 30′ N.. It was observed at Vienna on August 9, 9h. 53·5m., in R.A. 10h. 21m. 53s., Decl. 44° 49′ 26″. Faye's comet was picked up by M. Perrotin at the Nice Observatory on August 9, its place at 15h. 19·5m., Nice M.T., being R.A. 5h. 0m. 27·6s., Decl. 20° 0′ 42″ N. There are thus four comets now under observation. The following ephemeris, supplied in the *Dun Echt Circular*, No. 159, is derived from Dr. Kreutz's ephemeris for Faye's comet in the *Astr. Nachr.*, No. 2849, the time of perihelion passage having been increased by 2·6 days.

Ephemeris for Berlin Noon.

1888	R.A. h. m.	Decl. ° ′	1888	R.A. h. m.	Decl. ° ′
Aug. 20 ...	5 28·5	19 31 N.	Sept. 5 ...	6 9·5	17 58 N.
24 ...	5 39·0	19 13	9 ...	6 19·2	17 27
28 ...	5 49·4	18 51	13 ...	6 28·6	16 54
Sept. 1 ...	5 59·6	18 26 N.	17 ...	6 37·8	16 18 N.

Dr. Backlund's ephemeris for Encke's comet, given in the last issue of NATURE (p. 350), should also have been given for Berlin noon, and not for midnight. The resulting error of the ephemeris at the time of discovery thus becomes O – C; R.A. + 8s.; Decl. – 1′·3.

The following ephemeris, by Dr. H. Kreutz, for Brooks's comet is for Berlin midnight:—

1888.	R.A. h. m. s.	Decl. ° ′	1888.	R.A. h. m. s.	Decl. ° ′
Aug. 15	11 8 8	44 25·7 N.	Aug. 23	12 5 53	42 14·0 N.
19	11 37 41	43 32·9	27	12 32 21	40 33·4

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 *AUGUST* 19–25.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on August 19

Sun rises, 4h. 54m.; souths, 12h. 3m. 18·2s.; sets, 19h. 12m.: right asc. on meridian, 9h. 56·4m.; decl. 12° 34′ N. Sidereal Time at Sunset, 17h. 6m.

Moon (Full on August 21, 16h.) rises, 18h. 18m.; souths, 22h. 38m.; sets, 3h. 3m.*: right asc. on meridian, 20h. 32·6m.; decl. 19° 20′ S.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. and declination on meridian. h. m.	 ° ′
Mercury..	4 21 ...	11 47 ...	19 13 ...	9 40·3 ...	15 45 N.
Venus.....	5 51 ...	12 46 ...	19 41 ...	10 39·3 ...	10 3 N.
Mars......	12 30 ...	16 58 ...	21 26 ...	14 52·2 ...	17 57 S.
Jupiter....	13 26 ...	17 48 ...	22 10 ...	15 41·9 ...	18 58 S.
Saturn....	3 28 ...	11 7 ...	18 46 ...	9 0·0 ...	17 47 N.
Uranus...	9 24 ...	15 1 ...	20 38 ...	12 54·9 ...	5 12 S.
Neptune..	22 23*...	6 10 ..	13 57 ...	4 2·1 ...	18 59 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich).

Aug.	Star.	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image. ° °
21 ...	γ Capricorni ...	3½ ...	0 58 ...	2 10 ...	126 314
21 ...	50 Aquarii ...	6 ...	20 17	near approach	162 —
22 ...	ψ³ Aquarii ...	5 ...	21 46 ...	22 30 ...	29 320
22 ...	ψ² Aquarii ...	4½ ...	21 55	near approach	172 —

Aug.	h.	
24 ...	1 ...	Mercury in superior conjunction with the Sun.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
Algol	3 0·9 ...	40 31 N. ...	Aug. 23,	0 55	*m*
			,, 25,	21 44	*m*
λ Tauri...	3 54·5 ...	12 10 N. ...	,, 20,	0 57	*m*
			,, 23,	23 49	*m*
T Monocerotis ...	6 19·2 ...	7 9 N. ...	,, 25,	4 0	*M*
R Canis Minoris...	7 2·6 ...	10 12 N. ...	,, 21,		*M*
δ Libræ	14 55·0 ...	8 4 S. ...	,, 23,	22 34	*m*
U Coronæ	15 13·6 ...	32 3 N. ...	,, 22,	21 7	*m*
S Herculis	16 46·8 ...	15 8 N. ...	,, 23,		*M*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,, 19,	2 48	*m*
			and at intervals of	20 8	
W Sagittarii ...	17 57·9 ...	29 35 S. ...	Aug. 23,	20 0	*m*
U Sagittarii... ...	18 25·3 ...	19 12 S. ...	,, 23,	1 0	*m*
S Sagittarii	19 50·9 ...	16 20 N. ..	,, 19,	23 0	*M*
U Cygni	20 16·1 ...	47 33 N. ...	,, 20,		*m*
X Cygni	20 39·0 ...	35 11 N. ...	,, 22,	2 0	*M*
T Vulpeculæ ...	20 46·7 ...	27 50 N. ...	,, 19,	20 0	*M*
			,, 20,	21 0	*m*
R Vulpeculæ ...	20 59·4 ...	23 23 N. ...	,, 21,		*M*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 25,	22 0	*M*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
Near γ Camelopardalis...	54° ...	71° N. ...	Swift; streaks.
	290 ...	60 N. ...	Bright and slow; with trains.

GEOGRAPHICAL NOTES.

A WORK of great interest in the history of early European cartography has recently been published by Messrs. Stevens and Sons, of Great Russell Street, and the manner in which it came to be compiled is not a little curious. One of the most famous of the early European cartographers was Johann Schöner, Professor of Mathematics at Nuremberg in the early part of the sixteenth century. He is best known now by a series of terrestrial globes which he prepared, one about 1515, another in 1520, and a third in 1533, all three of which are still preserved at Frankfort, Nuremberg, and Weimar respectively. Here, so far as cartography is concerned, students would have believed Schöner's work to have ceased, were it not for a small Latin pamphlet of four pages which existed amongst his numerous writings, and which was, in substance, a letter to a high ecclesiastical authority of Bamberg descriptive of a globe on which were marked the discoveries made during Magellan's famous circumnavigation of the globe. Only three copies of this pamphlet were known to exist. It was dated 1523, and it obviously did not refer to the globes of 1515 or 1520, for these did not contain any references to the discoveries in question. Hence it was assumed that another globe, between 1520 and 1533 had been prepared by Schöner, but no trace of this could be found, and, if it existed at all, it seemed to be lost for ever. But in 1885 the late well-known bibliographer, Mr. Henry Stevens ("of Vermont") found in the catalogue of a Munich bookseller a facsimile of a globe which he at once recognized as the long lost work of Schöner. He promptly purchased it, and ultimately it found its way into the remarkable collection of works on early American geography and history made by Mr. Kalbfleisch, of New York, where it still is. But Mr. Stevens, who regarded it as "one of the keys to unlock the many mysteries of early American geography," determined to reproduce Schöner's letter and globe in facsimile, and to append a translation and an introductory sketch of the early historical geography of America. While still labouring at this work he died, but his son took it up, and, aided by Mr. C. H. Coote, of the Map Department of the British Museum, has now succeeded in bringing it to a conclusion. Schöner himself was entirely indebted for his knowledge of the results of Magellan's voyage to a letter written by one Maximilianus Transylvanus, a natural son of the Cardinal Archbishop of Salzburg, and then employed about the Court of the Emperor Charles V., describing for his father the expedition in question. This pamphlet is styled "De Molvccis," and from the descriptions here given, Schöner depicted the new portions of his globe, or, in his own words, "being desirous to make some small addition